A: Well, I guess first, to be disciplined in not being a first-class cadet, but becoming a very low second lieutenant, even of Engineers, which of course was the prideful place to be in those days, was a major change. I was assigned to one of the companies of the 1st Engineers, part of which was up at Monmouth, New Jersey. I think three companies, including the headquarters, were at Fort DuPont, and my first commander was a Captain Matthews. I stayed there just about a year doing normal company duties, you know, drilling and rifle range. We used to spend months on the rifle range in those days. Now they spend days or weeks on the rifle range. But, military training in those days was, as against today, quite simple because the equipment that the Army had in those days, the fighting equipment, consisted of a rifle, a machine gun, and a BAR, and maybe a 37 mm gun. I mean that's about all you had to worry about, and everybody knew how to take a machine gun apart and their rifle apart, an old Springfield, and it was much simpler than it is today with all the highly technical equipment that any organization has, even a company. It was long before the days of computers and advanced technology.

Q: What sort of work were the Engineers doing at Fort DuPont?

A: Just training. I reported there, I think, in September, and the next year we went up to Fort Dix to prepare some of the old mobilization barracks for National Guard occupancy later in the year.

Q: I see. So then you were at Fort Dix for awhile, and do you have any particular memories of this period? Was it just mainly a training period for you, learning the ropes as a young second lieutenant?

A: That was just about it. Learning how to administer a company, inventorying the post exchange, which you did every month in detail, keeping the company books, and drilling ad infinitum and things like that.

Q: I see. So then in September 1929, you went to Nicaragua?

A: That's right.

Q: Now, the reason why you were in Nicaragua, evidently, was to help in plotting a new sea level canal?

A: No. Ever since the--not ever since--but some years after the Panama Canal was finished, the governors of the Canal Zone and others became concerned about its future capacity. And planning way, way ahead, various surveys were made, and studies were made, as to what to do if the Panama Canal ever got to the point, or when it got to the point, that it couldn't take care of ocean traffic. So an act of Congress set up a study to examine the capacity of the Panama Canal, but also since we had a treaty in perpetuity with Nicaragua, saying that we wanted to retain the right to build a canal in Nicaragua, one of the parts of the study was to study again a Nicaraguan canal. It'd been studied, and even a little work had been done on it by a fellow by the name of Menocal, and as a matter of fact, there were several of the old French dredges sunk in the old harbor at Craytown, which had since then sanded up, so that it was no longer a commercial harbor. But we spent about a year-and-a-half on the survey. Let's see, there was a battalion of Engineers--three companies and a headquarters company, and we surveyed, physically surveyed, the route that Menocal had laid out to see if there were any changes, made lots of drillings to see whether the foundations of the locks were adequate, ran a cost estimate, did all the topography of it, and after a couple of years of that work, the battalion returned to the United States. But I was left there for about a year to supervise the collection of hydrologic data. We had rain gauges and evaporation pans, about a dozen of them in parts of Nicaragua, especially down the Rio Grande River, and once a month I would leave Granada and go down the river and collect the data. We paid people down there five dollars to collect the data and read the rain and all that.

Q: Was this canal that you were planning, was it to be a canal that had locks in it?

A: Yes. The idea of a sea-level canal, which had died under President Teddy Roosevelt after a series of

intensive studies, never really arose again until much later, when it was decided as a result of our joint studies that the Panama Canal was the place to expand when, as, and if.

Q: I see. Do you have any particular impressions of your stay in Nicaragua?

A: Well, you've got to put yourself in the position of being almost a brand new second lieutenant in the Army and living in Granada, which was the seat of the Conservative party of the government of Nicaragua. The other party, which ran the country, was in Managua. And, it was, I thought, a wonderful life. I enjoyed every minute of it. I did all sorts of things. Once a week I ran the supply boats from San Carlos down to Graytown with supplies for the Company in that sector. I did the surveying in the Brito area. My commanding officer in that effort was a first lieutenant by the name of Leslie R. Groves, who was a hard taskmaster. And, my dear friend at that time until he died shortly after World War II was Timothy Mulligan, who married a very, very fine Nicaraguan lady by the name of Julia Bernard. They had children, at least one of whom went to the U.S. Military Academy, and subsequently he resigned from the Army and went down to Nicaragua where he lives with his mother and another brother.

Q: You must have gotten to know Lieutenant Colonel Dan I. Sultan.

A: Dan I. Sultan was the commander of the battalion. The next officer under him, second in command, was Charlie Gross, who was a very interesting officer. Those two were the two top officers of the battalion.

Q: What was your impression of Sultan?

A: Very fine, good administrator. Knew what he was doing. 'Course, he got to be, what, a three-star general during the war? Very fond of him, and he and his wife did enough socially so that the organization stayed together. The organization lived in an old monastery in the city of Granada. The chief medical officer was Paul Hawley, who later became Surgeon General and head of the American College of Surgeons and also was Chief

Surgeon of Communications Zone in Europe during the war. Also a darned fine officer. We had darned good people down there. Ken Nichols was in the battalion. That's the only one I remember outstandingly.

Q: Did you get to know any of the important Nicaraguan figures, like General José Moncada? Or Portillo?

A: I met Moncada. General, Colonel Sultan, in those days, used to have those people in for dinner. Our activity down there was very important to the government of Nicaragua, so I met Moncada, who was then, I think, president. And, I also met a colonel by the name of Somoza, who later on in my career came to the Canal Zone, after he'd been--people attempted to assassinate him in Nicaragua, and President Eisenhower offered the family the opportunity of coming to Gorgas Hospital. And, he came there, and died there.

Q: Did you have any particular impression of these gentlemen, Moncada or [Anastasio] Somoza?

A: They were way up and I was way down.

Q: Did you ever get to know the opposition, that is, [Augusto] Sandino, the guerilla leader?

A: No, no. We were always aware he was there, though, and I was very close, of course, to the Marines who were then in occupancy, really an occupancy, in Nicaragua.

Q: Did you, the Engineers, have good relations with the Marines?

A: Oh, yes. Yes. They were our source of supply in Managua.

Q: According to my records, after Nicaragua, you went to MIT and received a BS in civil engineering a year later. Why MIT? There are a lot of officers who went to MIT to pick up an advanced degree in usually some branch of engineering. I'm curious about the relationship between the Army and MIT. Do you know anything about that?

A: Well, in those days it was the practice to send